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## SCIENTIFIC MANAGEMENT IN HOME-MAKING

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The recent development of what is known as scientific management in a variety of man's occupations, has roused the American woman to question whether this be not a system equally adaptable to her domain—the building and maintenance of the home. The purpose of this paper is to show that not only are these same principles definitely translatable to her world of activity, but that in the present status of the home the only sure progress toward the solution of the so-called "servant problem," as well as the high cost of living, lies in the ability to apply just this system of scientific management from the survey, the budget, the index and card-catalogue to the required time, motion, cost and temperature in boiling potatoes, making bread or washing a garment.

The Housekeeping Experiment Station of the New Jersey Federation of Women's Clubs was organized to develop a practical plan of facing collectively the situations daily brought to our door by the conflict of capital and labor; a plan that says: Meet the capital problem by organizing the consumer to a better coöperation with the producer and distributer, and eliminate the servant problem by eliminating the servant class. This latter is not so radical as at first appears, for the female house-servant is fast eliminating herself. Her tendency is to go to the factory, shop, office, or any industry where she can count upon a measure of legitimate freedom, regulated hours of work, and her own home for recreation; for she wants that feeling of self-respect which is difficult to obtain in a position where the condition of the work and the workers have been relegated by society itself, to the lowest plane claiming respectability. Apparently women employers have no idea of working for a domestic eight-hour labor day here, and the employee is too constantly held to her post to be able successfully to unionize herself. If, however, the supply of housemaids were not rapidly diminishing and the demand increas-

ing in both number and quality, the possibility of establishing any very different standards during this generation at least might be questioned, but, like the high cost of living, it has become both an individual and national problem, pressing for immediate solution, not only in America, but in other countries of the world.

It is a question for men and women both, in which women must take the initiative, but men provide the means for adoption. With the help of man and his methods, we can point to the establishment even now of a new kind of home operation, higher in value and lower in cost, which will include the domestic engineer, together with the expert or professional worker. The scientific pressure of home subjects makes it imperative to have intelligence at the post. Any high standard in household machinery even is out of the question except among trained and educated workers, and these it is impossible to call upon until society demands them and makes way for them by breaking up a class, unrelated to any high interpretation of our needs, a foreign element in more senses than one, that together with the conditions about the work and our attitude toward it has nearly torn the home asunder, making hopeless dependents of both employer and employee. That there are exceptions we know. There are also many house servants fit to pass almost directly into a professional class; yet the unfit unquestionably predominate. Therefore the thing to be done is to set up a system of domestic independence, or emancipation from this class effect. First, by realizing the subject has a future worthy the highest educational consideration, and giving oneself to it intellectually by scientific study of home economics in relation to one's own home and the home of the social whole. Second, by taking hold of the actual housework and proving as we have under the station's method that it not only can be done without servants in many cases where it now seems impossible, but that, shorn of its abuses, it still has within it every cultural value known. The time has come when it must be raised from its commonplace plane, not by sentiment but by science, and by doing away with drudgery as an accepted necessity, the long hours of labor, and the constant contact with unpleasant and degenerating conditions. These things have already, even in the station's short existence been reduced to a minimum.

We went about it in this way: In order to determine just what were the immediate problems of the housekeeper, thousands of ques-

tionnaires were sent among the New Jersey club women. From these replies we proceeded, after classifying them, to find the solutions. The most general complaint was ill health or lack of strength to accomplish. Next, lack of time to cover demands, and, looming large in the foregrounds, the general lack of means, money for improvements, and the right kind of maids. From these conditions we formed our system of tests and experiments, which have proved conclusively that machinery in the home is more generally satisfactory and economical than hand labor; that the scientific study of management is the way to make machinery pay, and that a serious study of one's surroundings and the way to work, is the health solution. Objectively it became a matter of applying the best known machinery, and through tests in efficiency, economy, time and motion, proving its value in doing the work from both the practical and educational standpoints. Each household operation was reduced to the effect or result desired, and an untiring search made for the best device, tool or material to produce these results—automatic electric being our standard. Many household tools on the market have the merit of utility, but most of them lack two elements, beauty of form and proper effect upon the operator. For instance, an individual laundry machine, good in principle and construction, does the work at the expense of the woman's hand. The handle was not made with the idea of fitting the place of strength in the hand and could not well be more uncomfortable. To know the best method of laundering is essential, but as important is the best and highest welfare of the laundress. Again, in ironing, the comfort of the woman is a serious factor. Why should constant standing be a necessity? And yet, no "sitting" outfit could be found. We were driven to inventing it, to prove our point. Environment is also most important. The beauty and charm of every room have had more attention than the kitchen, where the highest standard of art at present seems to be a place upon which one can turn a hose. Beauty includes cleanliness, but should have in addition a quality of constant refreshment and inspiration. A careful study of this point has been made in our scheme of tone color, because we believe it essential to right living as it is affected by the kitchen.

Food, its value and the manner of cooking have absorbed much of our time, reducing to simplified form the principles of dietetics, which demand the food elements in natural, pure state, and a knowledge

of where these may be purchased. The use of electric power in much of the preparation, we find most practical, even to peeling potatoes and cooking with the wonderful fireless-cooker principle, as applied to modern gas and electric stoves. The latter, clean, automatic, self-starting and self-stopping, eliminate attention while the process is going on, and conserve both quality and quantity. The dining-room we found the hardest problem—to give a dinner without a butler or maid. Again we were driven to inventing our own method, which includes the revolving "table butler," and a "dumb-butler" standing at the left of the hostess. In this manner a formal meal may be served, the table cleared, and with the aid of a surgeon's sterilizing pan, even the silver and glass washed. No one need rise, reach or pass from start to finish. A practical electric dish-washing machine has at last been invented however and we are delighted to report it is working beautifully, accomplishing standard results in one-fifth the usual time. Before this we have had to suggest the partial use of paper dishes, which may be burned in the incinerator, in order to carry out our plan of actual domestic independence.

All sorts of experiments in methods of house-cleaning with the best tools known, such as floor-waxing machines, metal polishers, etc., have been subjects of tests, to reduce dirt, and the time required to keep clean. Much of such work might be done from outside, but as it is now in the house we have taken conditions as they exist. Of course we believe and encourage as much being done out of the house coöperatively as is safe and will advance the privacy and individuality of the home. Personal, isolated, and eccentric standards do not make for general progress. There is a best way known of doing everything and that should rule; not necessarily the traditional, or that order of "do as I bid you because I bid you;" rather the one of knowing both the material and the best way, that a proper plan may be made accordingly.

The domestic engineer follows close in the wake of domestic independence, and is nearly related—a new profession to which the old idea of housekeeper must give way ere long. Everywhere we are impressed with the importance of the study of economics. Do we realize the origin of this word is the science of household affairs? And that it will never reach its maximum usefulness until it has first put the house in order? Scientific management includes efficiency in production, economy in operation, and as a system is effectively applicable not only to the home with no employee, but

to the individual who cares to apply it to herself. We all believe in the policy of conservation. Scientific management is its only technique. We must therefore master these principles and assemble them in our daily task if we would wisely conserve, to use not abuse, our natural resources.

Now briefly what are these principles? And how may they be applied to home-making, starting with a premise of no employee when the originators of the system declare at least one hundred employees necessary to make a project worthy the efficiency engineer? At the experiment station we have applied the method most successfully, and we believe it fitted to the home in general. Domestic means pertaining to the home and the family. Engineer means the skillful guidance of an enterprise to a desired result, with knowledge of the parts. Efficiency is the elimination of all waste, and the power to produce the effect intended—active, competent power. Science is the best known way, and management means to guide, not force. Surely so far this all applies to the household.

The four fundamental principles underlying scientific management are: First, the scientific way of doing everything. Second, the scientific selection of the workman. Third, the scientific training of the workman. Fourth, the coöperation of both parts, the head taking all responsibility of planning; the workman doing the work in a way that will advance his ability and general prosperity.

Again it stands for a large day's output, the best conditions under which to work, loss in case of failure, and reward in success. It asks at the outset, what of your material and resources? And what do you wish to produce? Not only do we find the home employee less, but also with no tangible or material product to be turned out at the end of each day or each week. To be sure we have the preparation and distribution of food, the washing of garments, or the laundry, and the labor needed in cleaning, sewing, nursing, and serving, but no stated output of commodities. And yet we can readily appreciate there is a scientific way of doing every part of housework, and that we can, as intelligent beings, select that part of ourselves which is adapted to the thing we must do, and be trained to the proper doing, guiding our intellect to find the best way, and our instinct to follow as an intelligent co-worker, using what we call the "What, Why and How System," which very soon will become the whole being.

Art is the creation of what ought to be from what is, and properly steps in at this point asking, What is a home? And what are your

conditions with which to produce such a one? Philosophy says, "Why produce it?" and proceeds to give the necessary thought or reason for the act, while Science tells how it shall be done, so that Art becomes intelligent and skillful in the doing. This is not a difficult operation, but one that should be applied to every act of life, if we would make the most of the individual. Thoughtless action is a waste of one's best power. The haphazard rule of thumb, any-old-way doing of things, is disorganizing in the extreme. And while it may seem a tedious method constantly to ask one's self what, why and how, it becomes a most interesting and constructive automatic habit of procedure, building up step by step not only the home, but the character, and that real kind of personality that counts—that thing that makes "the man a hundred times better than his words" or his acts.

Let us take the woman who wants to improve herself, or her home, for there are only two requirements in the practical application of scientific management to the home: that of having a home, even ever so humble, and the active and intelligent desire to better it; for it is what the home does to the family and the housework to the worker that are important. The home-maker should first ask herself: What is a home? And then how nearly is her ideal being realized? Next she should look to her resources, all the factors that are within her control with which to create that home. Then, with the right attitude and the right sense of proportion, she will be inspired to search for the right way and the right tools with which to proceed, first, analyzing or reducing every part of the home to its units, and building it up again to suit herself and her new ideals.

What the average normal woman wants is not so much leisure, as health, time for all things needed, and a bit of money ahead as a reward of success. Health is a sure return for the right use of the body. How many housekeepers know just the right movements of the body for all action? Even in the simplest household act there are involved three motives in every movement which work to the good, or otherwise, as we will: First, the one of directly accomplishing, eliminating all useless and fatiguing motions; second, the one of exhilaration, or the building up motive—eliminating all misuse of the spine, the diaphragm, and the muscles; and third, the one of beauty, the sense of touch, which makes for grace and quality in movement, eliminating awkward, angular, and coarse motions. So that we find a whole world of interest in just "motion study" as

applied to the necessary acts about the house. In fact, if all one's movements were perfect, it would about include the whole of scientific management; just as to keep even one of the commandments in the highest way would of necessity include the keeping of the other nine. With perfected motion, time would be gained. It is proverbial that the big and busy man is the one never hurried. He has not only learned how to work, but is able to apply his art instinct to the form and proportion of his work, giving each part its due consideration, and if he is a good business man, he will not overdraw upon his capital of nerve power for every day use and abuse any more than he would upon his bank account.

Money ahead is a result of proper production and proper investment which applies just as surely to the home. One should never invest in anything useful or ornamental until it is incorporated in one's needs, and every possession should pay for itself in one way or another. While labor saving devices are not safe in the hands of the average servant, the average mistress has yet much to learn of their true value. Too many worthless devices are purchased by the ignorant home-maker, which result in lowering the standard of all home devices. There are good and bad, and there should not only be judgment used in purchasing, but the housekeeper should know the construction, even to taking the machine apart and studying the principle upon which it operates.

There should be an impartial testing place for house equipment and food where a housekeeper may be properly advised as to values. This has been one of the efforts of the station for the past year, and it has been a satisfaction to find that not only is the best machinery, when really needed, an economic investment, but in every case where conditions are right, it pays a big dividend, a higher interest than would be considered legitimate in stocks. The best electric washing machine, for instance, when needed, will pay a return of 80 per cent of its cost the first year. So with all good labor-saving devices in proportion. The labor to operate them may be more expensive per hour, but one needs less of it.

A centralized corporation, or bureau of labor, should be able to supply the home with all the expert workers needed, by the hour, or day, contracts being made by the head and the employer, and not with each workman as now. This would eliminate the servant in the house and all the expenses attendant upon her, and there are many, and give us a class of independent, self-respecting business

people, both men and women, for housework positions. This is not beyond the possibility of the near future, but in any case the present necessity is to standardize the home through the system of domestic engineering, or scientific management, so that there may be a perfect coöperation of the family in efficiency principles, the "What, Why and How Method," as worked out in the following:

The object, purpose, or "ideal" of the home; "common-sense and judgment" in procedure; "competent counsel," or the finding out of just how to do things; "the fair deal" for everybody concerned; to live and let live in freedom; enough "discipline" to make each want to do his share; "accurate, reliable and immediate records," that proper conclusions may be arrived at; "planning and dispatching," that indecision and that weakness which are the result of nervously planning as you go, be avoided; knowledge of "standard conditions" in all things and "standard operations," but one's own "standards" of practice and "schedules" of procedure which make for originality and individuality in production; the writing down of all things that may become valuable as "instruction," and finally the very large principle of "Efficiency Reward," or the proper appreciation of all honest effort, and the condemnation of the dishonest.

This system as outlined by Mr. Emerson, we believe, is applicable to all procedure, and could readily be made the family parlance. It practically means the whole of the man in every act; the whole of the family to create and maintain the home, and is by its very nature of elimination a work-simplifying method whereby we may successfully face the serious problem of labor and capital in the home, preserving within its functions the private and individual joys of the home group, and home ideals.

The essentials of a home are few, but they are exceeding fine! Housework should and can—instead of being a drudgery that wears out the woman—be an occupation that will demand her highest conception and highest powers of production, thereby contributing to her highest powers of culture; a self-realization and a self-determined doing that will make for the development of her best personality. In the last analysis there are but two instincts that diverge from the great consciousness, the one home-making; the other, world-conquering; and as the highest object of the second is but to deposit the results at the shrine of the first, what we call home is supreme, and as such does it not demand conservation, and is it not worthy our highest consideration?